

What is claimed is:

1. A method for planning an inspection path (2) for at least one optical picture-taking device (4), particularly a camera, for inspecting a three-dimensional object (3), with which the picture-taking device (4) and the object (3) are movable relative to each other  
5 using a displacement device (5, 6),  
wherein,  
based on the design data (8), particularly CAD data and/or data determined by a sensor, of the object (3) and/or an area (12) to be inspected on the object, and based on the optical imaging characteristics of the picture-taking device (4), stored in electronic  
10 form, and by using an arithmetic logic unit (10), the inspection path (2) for the optical picture-taking device (4) is automatically determined by specifying a specific geometric relationship between the picture-taking device (4) and the surface to be inspected.
2. The method as recited in Claim 1,  
wherein  
15 the optical picture-taking device (4) is guided over the stationary or moving object (3).
3. The method as recited in Claim 1 or 2,  
wherein  
picture-taking positions of the picture-taking device (4) are determined by covering the entire three-dimensional object (3) or all areas (12) to be inspected on the object with  
20 pictures that were taken.
4. The method as recited in Claim 3,  
wherein  
points in time for taking pictures are determined with consideration for displacement information (11) of the displacement device (5, 6) and the picture-taking positions of the  
25 picture-taking device (4).
5. The method as recited in one of the preceding Claims,  
wherein  
an illumination device is assigned to the picture-taking device (4), and the inspection

path (2) is determined by specifying a specific geometric relationship between the picture-taking device (4), the illumination device, and the surface to be inspected.

6. The method as recited in one of the preceding Claims,  
wherein

5 a motion sequence for the relative motion between the object (3) and the picture-taking device (4) and/or the illumination device is determined from the inspection path (2).

7. The method as recited in Claim 6,  
wherein

10 the inspection time and/or inspection path are kept as short as possible in the determination of the motion sequences.

8. The method as recited in one of the preceding Claims,  
wherein

an area (12) to be inspected within the picture is assigned to each picture of the optical picture-taking device (4).

15 9. The method as recited in Claim 8,  
wherein

a check is carried out based on the area (12) to be inspected and the inspection path (2) to determine whether the object (3) defined by the design data (8) or the entire area (12) to be inspected on the object (3) defined by the design data (8) is completely covered.

20 10. The method as recited in one of the preceding Claims,  
wherein

the inspection path (2) and/or the areas (12) to be inspected and that have been defined on an object (3) are visualized on a display means, particularly a screen.

11. A method for determining areas (12) to be inspected on a surface of a three-  
25 dimensional object (3) based on design data (8) available in electronic form, particularly CAD data, relating to the object (3),  
wherein

it is specified for certain areas (12, 13) on the object whether and in which manner these

areas (12, 13) are to be inspected, and that, during the inspection with a picture-taking device (4), these areas (12) to be inspected are assigned to the pictures that were actually taken.

12. The method as recited in Claim 11,

5 wherein

areas (12) to be inspected, areas (13) not to be inspected, and/or areas (12) to be inspected in a certain manner are determined automatically based on the design data (8), particularly by determining geometric shapes or other parameters.

13. The method as recited in Claim 11 or 12,

10 wherein

the areas (12) to be inspected are stored and/or visualized as calculated pictures (14).

14. The method as recited in Claim 12 or 13,

wherein

15 the automatically generated areas (12) to be inspected are capable of being processed manually.

15. The method as recited in one of the Claims 11 through 14,

wherein

the calculated pictures (14) with the areas (12) to be inspected and/or a visualization of the areas (12) to be inspected are displayed in the pictures that were actually taken.

20 16. The method as recited in one of the preceding Claims,

wherein

features in the areas (2) to be inspected and that were determined from the design data (8) are compared with the features recognizable in the pictures that were taken, and a position correction is carried out, if necessary, based on the results of the comparison.

25 17. The method as recited in one of the preceding Claims,

wherein

the optical picture-taking device (4) is calibrated three-dimensionally.

18. The method as recited in Claim 17,

wherein

a fine-positioning of the object (3) in the picture is carried out.